

Application No. 09/991,247
Amendment dated April 21, 2004
Reply to Final Office Action of January 30, 2004

AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph bridging pages 10 and 11 of the specification with the paragraph below:

As shown in Figs. 4-6, a preferred embodiment of the bone dowel of the present invention is shown and generally referred to by the numeral 100. Bone dowel 100 preferably has a substantially cylindrical configuration having an arcuate outer wall 102 having opposed openings 104 leading to a passageway 106. Arcuate outer wall 102 includes opposite upper and lower surfaces adapted to be placed in contact with and to support the adjacent vertebral bodies, and opposite sides therebetween. The upper and lower surfaces are arcuate in a direction from one of the opposite sides to another of the opposite sides. The exterior of bone dowel 100 comprises surface roughenings or projections, preferably ratchetings 108 that provide a surface suitable for engaging adjacent vertebral bodies to stabilize bone dowel 100 across the disc space and into the adjacent vertebral bodies once surgically implanted. In Figs. 4-6, ratchetings 108 extend around the circumference of bone dowel 100. Each of the ratchetings 108 has a bone-engaging edge 110, and a leading face or an angled segment 112, and a rearward portion opposite angled segment 112. Ratchetings 108 are preferably forward facing with angled segment 112 facing the direction of insertion for a one-way insertion of the bone dowel. Angled segment 112 and the rearward portion each have a length and a slope. The length of angled segment 112 is longer than the length of the rearward portion. The slope of the rearward portion is steeper than the slope of angled segment 112 to facilitate one-way insertion of bone dowel 100.

Please add the following new paragraph after the second full paragraph on page 18 of the specification:

--The bone dowels of the present invention may have upper and lower surfaces that are porous. The bone dowels of the present invention may have

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upper and lower surfaces that include a bone ingrowth surface. The bone dowels of the present invention may have upper and lower surfaces that are in an angular relationship to each other from the trailing end to the leading end for allowing angulation of the adjacent vertebral bodies relative to each other.--

Please add the following new paragraph after the paragraph bridging pages 18 and 19 of the specification:

--The bone dowels of the present invention may have a body with a leading end for insertion first into the disc space, a trailing end opposite the leading end, a mid-longitudinal axis through the leading and trailing ends, a width transverse to the mid-longitudinal axis, and a height transverse to both the width and the mid-longitudinal axis, where the dowel has a maximum width that is less than a maximum height. (See, for example, Figs. 9, 9A, 12, 15, 18, and 21).--

Please replace the first full paragraph on page 20 of the specification with the paragraph below:

The passageway is preferably adapted to hold any natural or artificial osteoconductive, osteoinductive, osteogenic, or other fusion enhancing material. Some examples of such materials are bone harvested from the patient, or bone growth-inducing material, such as, but not limited to, hydroxyapatite, hydroxyapatite tricalcium phosphate, genes coding for production of bone, or bone morphogenetic protein. The bone dowel of the present invention may be filled and/or coated with a bone ingrowth inducing material, such as, but not limited to, hydroxyapatite or hydroxyapatite tricalcium phosphate or any other osteoconductive, osteoinductive, osteogenic, or other fusion enhancing material. The bone dowel of the present invention may be combined with a fusion promoting material. The fusion promoting material may be other than bone, for example, bone morphogenetic protein, genetic material coding for the production of bone, hydroxyapatite, and hydroxyapatite tricalcium phosphate. The bone

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dowel of the present invention may be combined with a chemical substance to inhibit scar formation.